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July 20, 2016

VIA ELECTRONIC SUBMISSION

Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

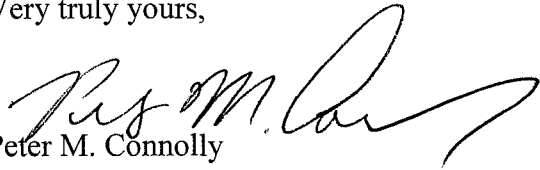
Re: Application of USCOC of Greater North Carolina, LLC and Horry Telephone Cooperative For Consent to Assign A Lower 700 MHz A Block License (WT Docket No. 16-154)

Dear Ms. Dortch:

Transmitted herewith, on behalf of USCOC of Greater North Carolina and its parent company, United States Cellular Corporation, is a redacted version of its Response to the July 6, 2016 letter from Jon Wilkins, Chief of the Wireless Telecommunications Bureau, to John Gockley of United States Cellular Corporation seeking additional information concerning the above-referenced application.

In the event there are any questions concerning this matter please communicate with the undersigned.

Very truly yours,


Peter M. Connolly

cc: (via email):
Scott Patrick (*FCC*)
Kate Mathews (*FCC*)
Jim Bird (*FCC*)

WT DKT. 16-154
US CELLULAR RESPONSE

Redacted for Public Inspection

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Jon Wilkins
Chief, Wireless Telecommunications Bureau
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Application of USCOC of Greater North Carolina, LLC and Horry Telephone Cooperative For Consent to Assign A Lower 700 MHz (WT Docket No. 16-154) (Confidential Information – Subject to Protective Order in WT Docket No. 16-154 Before Federal Communications Commission)

Dear Mr. Wilkins:

On behalf of USCOC of Greater North Carolina, LLC and its parent company United States Cellular Corporation (collectively “USCC”), this will respond to your letter of July 6, 2016 seeking “additional information, documents and clarification of certain matters discussed in the application and other information provided to the Commission.”

For convenience, we will reprint each of the Commission’s questions before providing our response.

QUESTION 1. On page 1 of the Public Interest Statement, the Applicants claim that USCC “plans to use the 700 MHz spectrum to implement its Long Term Evolution (‘LTE’) data capacity and achieve higher data speeds in the relevant license area.” Further, on page 2 of the Public Interest Statement, the Applicants assert acquiring the additional spectrum is will enable USCC “to offer customers a 10 x 10 channel with throughput speeds comparable to those of the larger carriers.” For each of CMA 218 (Wilmington, NC) and CMA 515 (North Carolina 11-Hoke:) provide.

a. A detailed discussion of the Company’s plans to provide high quality, high speed wireless broadband services prior to the Proposed Transaction, including a detailed description of

the Company's current and planned deployment of LTE, which identifies the spectrum bands and the total amount of spectrum used for LTE deployment.

b. A detailed description of how the Company would use the spectrum that it would acquire under the Proposed Transaction, to provide a 10 x 10 megahertz LTE network, on a standalone basis and/or in conjunction with any other of the Company's spectrum holdings.

c. A detailed description of how deployment of a 10 x 10 MHz LTE network would improve network capacity and throughput speeds, and the Company's timeline for such deployment.

d. A detailed explanation of why the Company needs more than one-third of the suitable and available spectrum below 1 GHz for the provision of mobile wireless services.

e. Provide all documents relied on in preparing the responses to 1(a)-1(d).

Answer to Question 1(a)

The proposed acquisition involves four counties in the Wilmington, NC BEA¹ (the "Relevant Area"). Attachment A hereto is a map of the Relevant Area. In order to provide competitive service, USCC plans to utilize the additional 12 MHz of 700 MHz A Block Spectrum it seeks to acquire in the Proposed Transaction to upgrade and enhance its existing 700 MHz LTE deployment from 5 x 5 MHz channel to a 10 x 10 MHz channel. This will allow USCC to provide an LTE experience comparable to its competitors.

Attachment B hereto consists of an internal USCC presentation describing USCC's "valuation" of the partitioned license in the Relevant Area.

Attachment C hereto consists in part of analytic charts prepared for USCC comparing, in detail, USCC's network performance in the Relevant Area and that of AT&T, Sprint, T-Mobile, and Verizon Wireless.

USCC currently offers CDMA, EVDO, and LTE services in the Relevant Area. These services are deployed on USCC's current spectrum holdings. These consist in part of 25 MHz of A Block cellular spectrum. The cellular spectrum band is now used to support USCC's [REDACTED] services in the Relevant Area. USCC is also licensed for 10 MHz of PCS spectrum in in the Relevant Area. [REDACTED]

[REDACTED]

[REDACTED]

¹ Those North Carolina counties are Brunswick, Columbus, Pender and New Hanover. The Relevant Area also overlaps with The Wilmington, NC MSA (Brunswick, New Hanover), North Carolina 11-Hoke (Columbus) and North Carolina 12-Sampson (Pender)




The chart below, taken from the pending application, graphically describes USCC's present and proposed spectrum holdings in the relevant area together with the King Street spectrum to which USCC has access.

BEA	County	Cty FIPS	Overlap CMA	Overlap BTA	Overlap MTA	Overlap REA	Proposed USCC 700 MHz A Block Spectrum Acquisition (in MHz)	Currently Licensed Attributable USCC Cellular A/B Block Spectrum (in MHz)	Currently Licensed Attributable USCC FCC A-F Block Spectrum (in MHz)	Currently Licensed Attributable USCC 700 MHz Spectrum (in MHz)	Currently Licensed Attributable USCC AWS-1 Spectrum (in MHz)	Current Total Attributable USCC CMRS Spectrum Holdings	Total Attributable Sub 1 GHz USCC Spectrum - Post Transaction Closing	Total Attributable USCC CMRS Spectrum - Post Transaction Closing
025 - Wilmington, NC-SC (Cell Sign w/322551 partition assignment)	Brunswick, NC	37018	218 - Wilmington, NC	478 - Wilmington, NC	006 - Charlotte-Greensboro-Greenville	002 - Southeast	12 MHz	25 MHz ("U")	10 MHz ("U")	12 MHz ("K")	n/a	47 MHz	49 MHz	59 MHz
	New Hanover, NC	37129	218 - Wilmington, NC	478 - Wilmington, NC	006 - Charlotte-Greensboro-Greenville	002 - Southeast	12 MHz	25 MHz ("U")	10 MHz ("U")	12 MHz ("K")	n/a	47 MHz	49 MHz	59 MHz
	Columbus, NC	37047	575 - North Carolina 11-Hoke	478 - Wilmington, NC	006 - Charlotte-Greensboro-Greenville	002 - Southeast	12 MHz	25 MHz ("U")	10 MHz ("U")	12 MHz ("K")	n/a	47 MHz	49 MHz	59 MHz
	Pender, NC	37141	576 - North Carolina 12-Sampson	478 - Wilmington, NC	006 - Charlotte-Greensboro-Greenville	002 - Southeast	12 MHz	25 MHz ("U")	10 MHz ("U")	n/a	20 MHz ("A")	55 MHz	37 MHz	67 MHz

*A - attributable spectrum held through Aquinas Wireless, L.P., of which US Cellular holds an indirect, non-controlling 90% interest
 *K - attributable spectrum held through King Street Wireless, L.P., of which US Cellular holds an indirect, non-controlling 90% interest
 *U - spectrum held directly by US Cellular controlled entities

USCC has undertaken research to determine how its present network operations in the Relevant Area compares with those of Verizon, Sprint, T-Mobile and AT&T. Nielsen, under contract to USCC, made the comparative analysis, which is summarized in the detailed charts included in Attachment C. The charts describe network "throughput" rankings in the Relevant Area. They provide information regarding network "throughput" speeds both to wireless handsets ("GET")

and from wireless handsets (“POST”).



Answer to QUESTION 1(b):


To put it simply, a 10 x 10 MHz LTE deployment provides throughput speeds and additional capacity that are approximately two times the speed and capacity of a 5 x 5 MHz LTE deployment. Attached hereto as Attachment D is a PowerPoint presentation, prepared by USCC, which compares the operations of 1X EV-DO Rev.A, 5 x 5 MHz LTE, and 10 x 10 MHz LTE systems with respect to download speeds, upload speeds, airlink latency, connection setup times, movie download times, MP3 download times, and e-mail and attachment download times. As shown in the chart, 10 x 10 MHz LTE performance is far superior to that of 5 x 5 MHz operations.

In that connection, we would note that the FCC has repeatedly stressed the importance of improving carrier broadband speed to meet its educational and other public interest goals. See, e.g., In the Matter of Modernizing the E-Rate Program For Schools and Libraries Connect America Fund, Second Report and Order on Reconsideration, W.C. Docket Nos 13-184 and 10-90, FCC 14-189, released December 19, 2014, ¶68 (“We require high-cost support recipients to offer high-speed broadband connections sufficient to meet the targets set forth in the E-Rate Modernization Order...”).

Answer to QUESTION 1(c):

As noted above, USCC made a judgment that it needed the additional 700 MHz spectrum to improve its network in the Relevant Area and provide an LTE experience comparable to that provided by its competitors. As is also noted above, Attachment C hereto consists of detailed comparative charts comparing the network “throughput” in the Relevant Area of Verizon Wireless, AT&T, T-Mobile, Sprint, and USCC. The charts reveal USCC’s present network to be competitive but in need of additional spectrum to meet the challenges of the future.

Answer to QUESTION 1(d):



Certain C Block 700 MHz spectrum compatible with USCC’s network was available in the Relevant Area and USCC believed that that spectrum was essential to the achievement of an improved network and competitive parity with its larger rivals.

Answer to QUESTION 1(e):

The documents are provided in Attachments A-D and are discussed above.

QUESTION 2. On page 2 of the Public Interest Statement, the Applicants allege that the acquisition of additional spectrum by USCC “will better enable [it] to compete [with the larger wireless carriers].” For each of CMA 218 (Wilmington, NC) and CMA 515 (North Carolina 11-

Hoke) provide a detailed discussion of how the Proposed Transaction promotes and preserves meaningful competition, would still allow rival service providers and potential new entrants to provide an effective competitive constraint, and how it would allow the Company to become a more effective competitor. Provide all documents relied on in preparing the response.

Answer to Question 2:

As noted above, the additional 12 MHz of 700 MHz A Block spectrum would better enable USCC to compete in the Relevant Area, now and in the future. Future competition is not something which can be estimated or quantified precisely but competition is now thriving in the Relevant Area and likely will do so in the future.

Attachment C hereto contains detailed comparisons of the network performance of USCC and its main competitors in the Relevant Area. The comparisons indicate that the additional spectrum will help USCC make its network more competitive with its competitors.

Attachment B of the instant application, incorporated by reference here, described the spectrum holdings of USCC's competitors in the Relevant Area. They are extensive. For example, Verizon Wireless holds B Block cellular spectrum, Upper 700 MHz C Block spectrum, B and F Block AWS-1 spectrum and C Block PCS spectrum. AT&T holds Lower 700 MHz C Block spectrum, AWS-1 A Block spectrum, AWS-I Block spectrum, and PCS Block spectrum. Sprint holds D and F Block PCS spectrum and BRS spectrum throughout the Relevant Area.

USCC has no current market share data for the Relevant Area but believes, based on data for the partially overlapping Wilmington MSA, that the numbering information to be reviewed by the Wireless Bureau for the Relevant Area in connection with the Proposed Transaction will demonstrate a healthy degree of competition in the Relevant Area.

QUESTION 3. Provide polygons in an ESRI shapefile format representing geographic coverage for USCC in each of CMA 218 (Wilmington, NC) and CMA 515 (North Carolina 11-Hoke), including each mobile broadband network technology (e.g., CDMA, EV-DO, EV-DO. Rev. A, GSM, EDGE, UMTS, HSPA, HSPA+, LTE) deployed in each frequency band (e.g., Lower 700 MHz, Cellular, SMR, AWS-1, PCS), BRSI EBS. Provide all assumptions, methodology (e.g., propagation, projection, field measurements), calculations (including link budgets), tools (e.g., predictive and field measurements) and data (e.g., terrain, morphology, buildings) used in the production of the polygons, and identify the propagation tool used, the propagation model used within that tool, including but not limited to, the coefficients used in the model and any additions, corrections or modifications made to the model.

Answer to Question 3:

The requested ESRI shape files and spectrum coverage maps, along with the relevant "link budgets," are attached hereto as Attachment E. The maps depict USCC's present cellular (Band Class 5), PCS (Band Class 2), and LTE (Band Class 12) coverage of the Relevant Area. The

information provided in the shape files with respect to USCC's CDMA, EVDO, and LTE coverage is described below.

The ESRI shape files are provided for the following types of network coverage in the Relevant Area.

- CDMA Coverage

We attach analysis of USCC's CDMA 1XRTT reverse link budget. It provides a threshold for expected "In-Vehicle" coverage as identified by Reverse Link Required Effective Isotropic Radiated Power (EIRP). Industry standard coverage prediction tools were used to create predicted coverage plots. The threshold value was then used to create the provided contour showing where USCC expects to have at minimum "In-Vehicle" coverage. The predictions are based on mathematical estimations at a 30x30 meter grid level, and resized to a 180x180 meter due to processing constraints. Actual coverage will vary and depend on many factors typical of radio technologies including but not limited to distance to cell, cell/resource loading, subscriber speed, indoor/outdoor usage, etc.).

- EVDO Coverage

Similarly, analysis is provided for USCC's EVDO reverse link budget. It provides a threshold for expected "In-Vehicle" coverage as identified by Reverse Link Required Effective Isotropic Radiated Power (EIRP). Industry standard coverage prediction tools were used to create predicted coverage plots. The threshold value was then used to create the provided contour showing where USCC expects to have at least mobile "In-Vehicle" coverage. The predictions are based on mathematical estimations at a 30x30 meter grid level, and resized to a 180x180 meter due to processing constraints. Actual coverage will vary and depend on many factors typical of radio technologies including but not limited to distance to cell, cell/resource loading, subscriber speed, indoor/outdoor usage, etc.).

- LTE Coverage

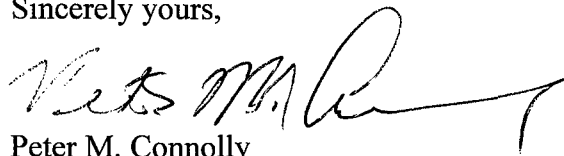
Lastly, analysis is provided for USCC's LTE reverse link budget. It provides expected "In-Vehicle" coverage as identified by Reverse Link Required Effective Isotropic Radiated Power (EIRP). Industry standard coverage prediction tools were used to create predicted coverage plots. The threshold value was then used to create the provided contour showing where US Cellular expects to have at least mobile "In-Vehicle" coverage. The predictions are based on mathematical estimations at a 30x30 meter grid level, and resized to a 180x180 meter due to processing constraints. Actual coverage will vary and depend on many factors typical of radio technologies including but not limited to distance to cell, cell/resource loading, subscriber speed, indoor/outdoor usage, etc.).

In closing, USCC would also stress that it is one of the few remaining mid-sized wireless carriers, a category which formerly included such strong competitors as Alltel, Midwest Wireless, Western Wireless, Leap, MetroPCS, Atlantic Cellular, and Dobson Cellular. Such carriers once provided disciplining competition to the largest wireless carriers. But they are now gone, absorbed by larger

carriers. USCC however has chosen to remain a wireless carrier and is pursuing a long term strategy which involves strengthening its spectrum position in regions and markets where it has the strongest position and largest market share, and thus the best chance to succeed. The Proposed Transaction is part of USCC's acquisition strategy, as North Carolina is one of its important strategic markets.

We ask the FCC to permit this relatively small acquisition of spectrum to go forward, precisely to strengthen USCC as a competitor to the "Big Four" and other carriers. The Proposed Transaction will strengthen competition nationally and locally.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Peter M. Connolly", with a long horizontal flourish extending to the right.

Peter M. Connolly

cc: Katherine Harris, FCC (katherine.harris@fcc.gov)

**CONFIDENTIAL INFORMATION
SUBJECT TO PROTECTIVE ORDER
IN WT DOCKET NO. 16-154 BEFORE
FEDERAL COMMUNICATIONS
COMMISSION**

WT DKT. 16-154
US CELLULAR RESPONSE

Attachments A through E
Redacted from Public Inspection

Confidential Information Subject to
Protective Order in WT Docket 16-154
Before the Federal Communications Commission